

Listing of the Claims:

Claims 1-29 (canceled).

Claim 30 (currently amended). A method of forming a polyurethane-based polymer comprising the steps of:

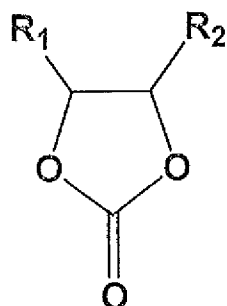
(a) mixing one or more cyclocarbonate resins with at least one natural or synthetic, modified or unmodified nano-clay having a platelet thickness of ~~less than 25~~ between 4-8 Å and an aspect ratio higher than 100 ~~40~~ or a nanocomposite formed from the nano-clay; and with at least one hardener to form a composition; and

(b) curing the composition to form the polyurethane-based polymer and

wherein the polyurethane-based polymer is a non-isocyanate-based polyurethane polymer.

Claims 31-44 (canceled).

Claim 45 (previously presented). The method of claim 30 wherein the cyclocarbonate resin is a compound of formula I:



(I)

wherein R₁ and R₂ are each independently hydrogen, or a linear or branched, or cyclic, saturated or unsaturated group optionally substituted with one or more heteroatoms, oxygen-containing groups or nitrogen-containing groups.

Claim 46 (previously presented). The method of claim 30 wherein a compound containing one or more epoxy groups is further mixed with the cyclocarbonate resin, nano-clay or nanocomposite formed from the nano-clay, and hardener to form the composition.

Claim 47 (previously presented). The method of claim 30 wherein the nano-clay is a natural or modified bentonite, saponite, hectorite, montmorillonite or synthetic mica fluoride.

Claim 48 (previously presented). The method of claim 30, wherein the composition is cured at room temperature.